Extra Effort Needed to Meet CD1 Milestone for ITER FW/Shield Contribution

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Outline

- Status of Module 18 design
- What is needed for CD1
- Extra effort to reach CD1
- Summary

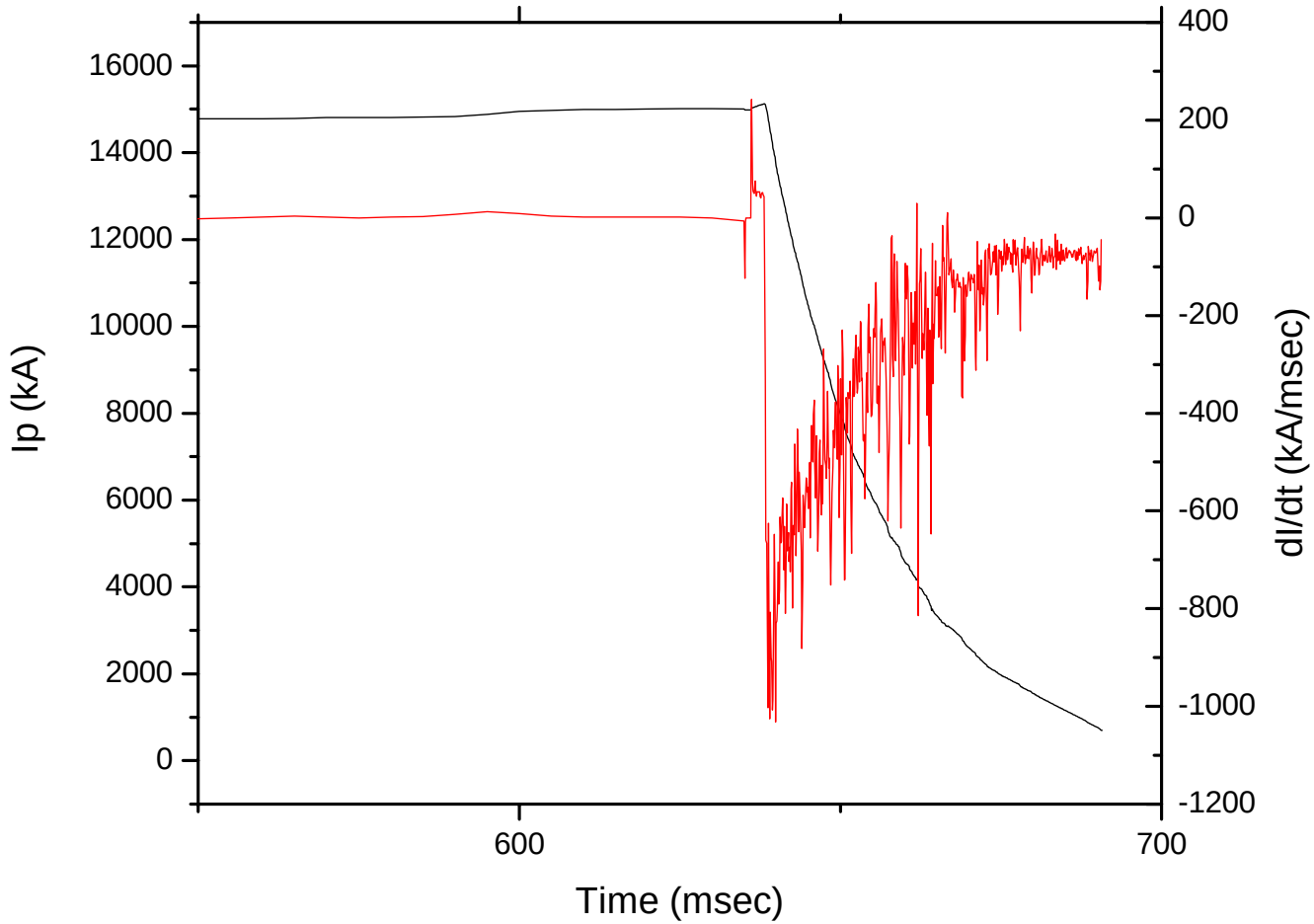
Status of Module 18 design

- The IT does not have a workable design for module 18
  - Baseline is highly segmented and not compatible with the base FW design (US design task)
  - We were only provided a design envelop
- The key issue is eddy current control
  - Determines the number of segments and control cuts
  - Plasma disruption information is from the Dina code (Russian) and we have no experience

What Is Needed For CD1?

- Interface the DINA output to the Opera code
- Evaluate the size and position of cuts to control EM currents
  - Must include the triangular support, vacuum vessel, nearby modules and the divertor
- Build a CATIA model of module 18 including the results of the EM studies
- Get the IT to agree with the concept
- Document and prepare conceptual cost estimate

Plasma Current Decay in VDE



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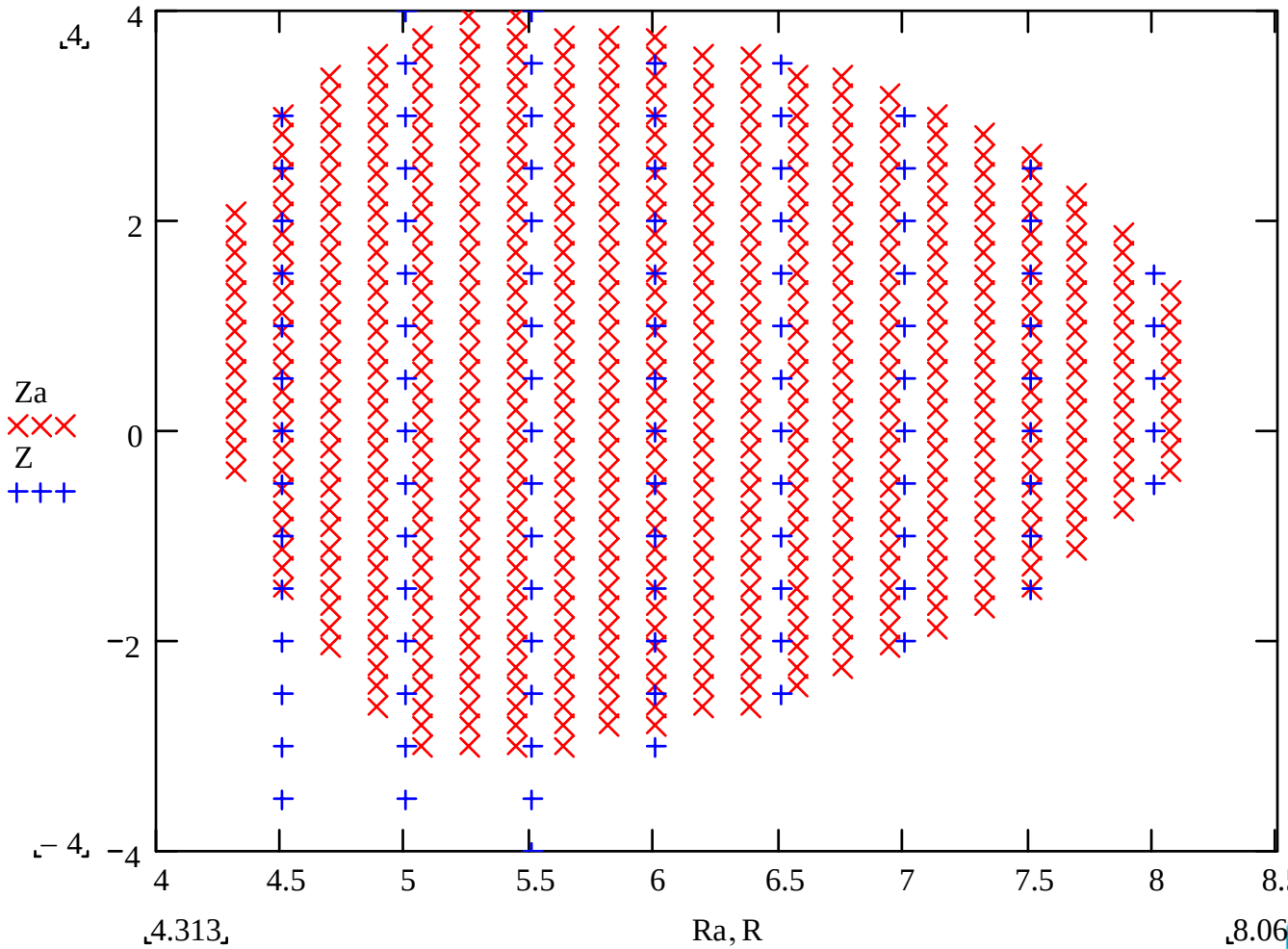
Original Plasma



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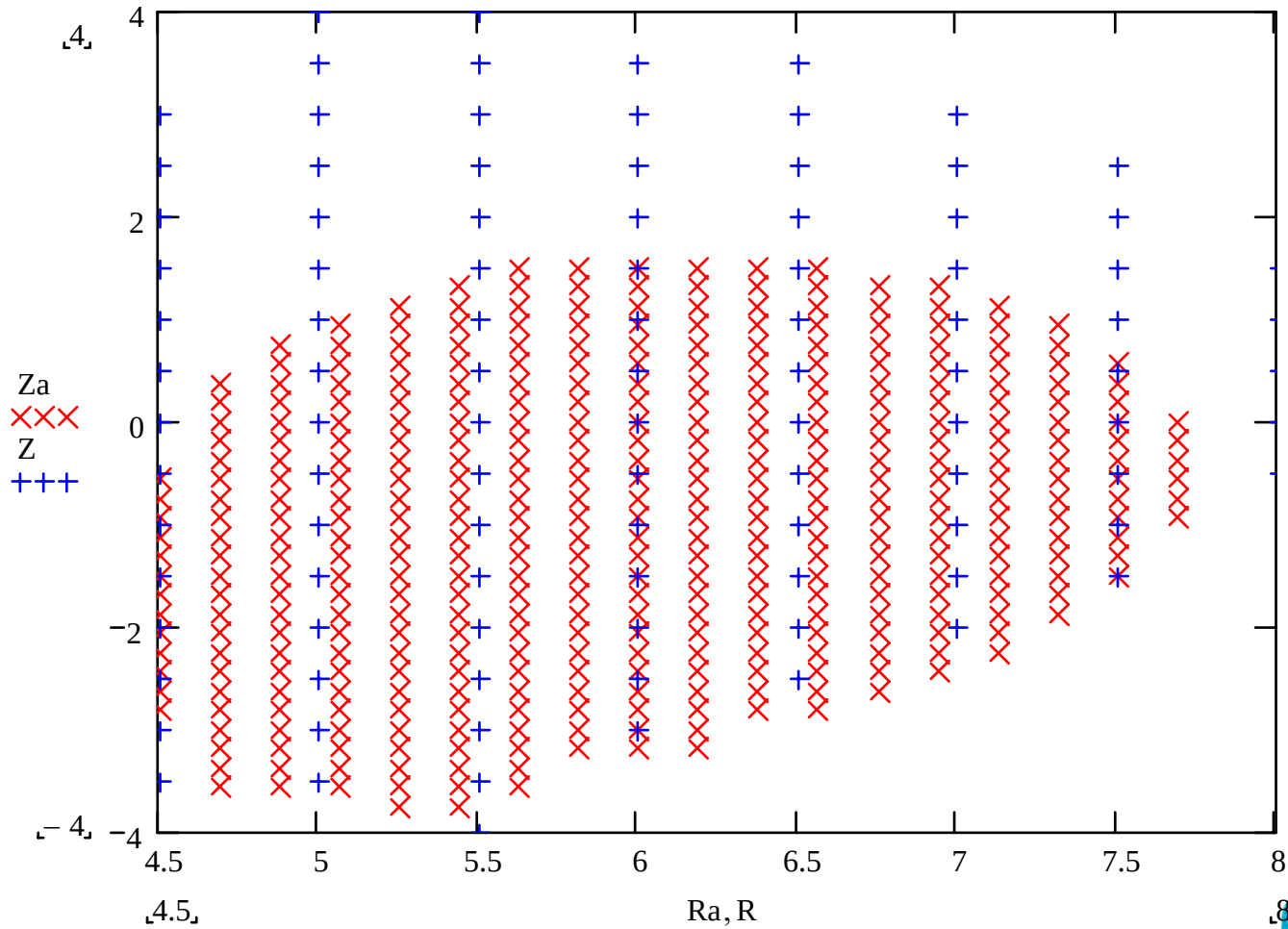
After drifting vertically for 0.6s



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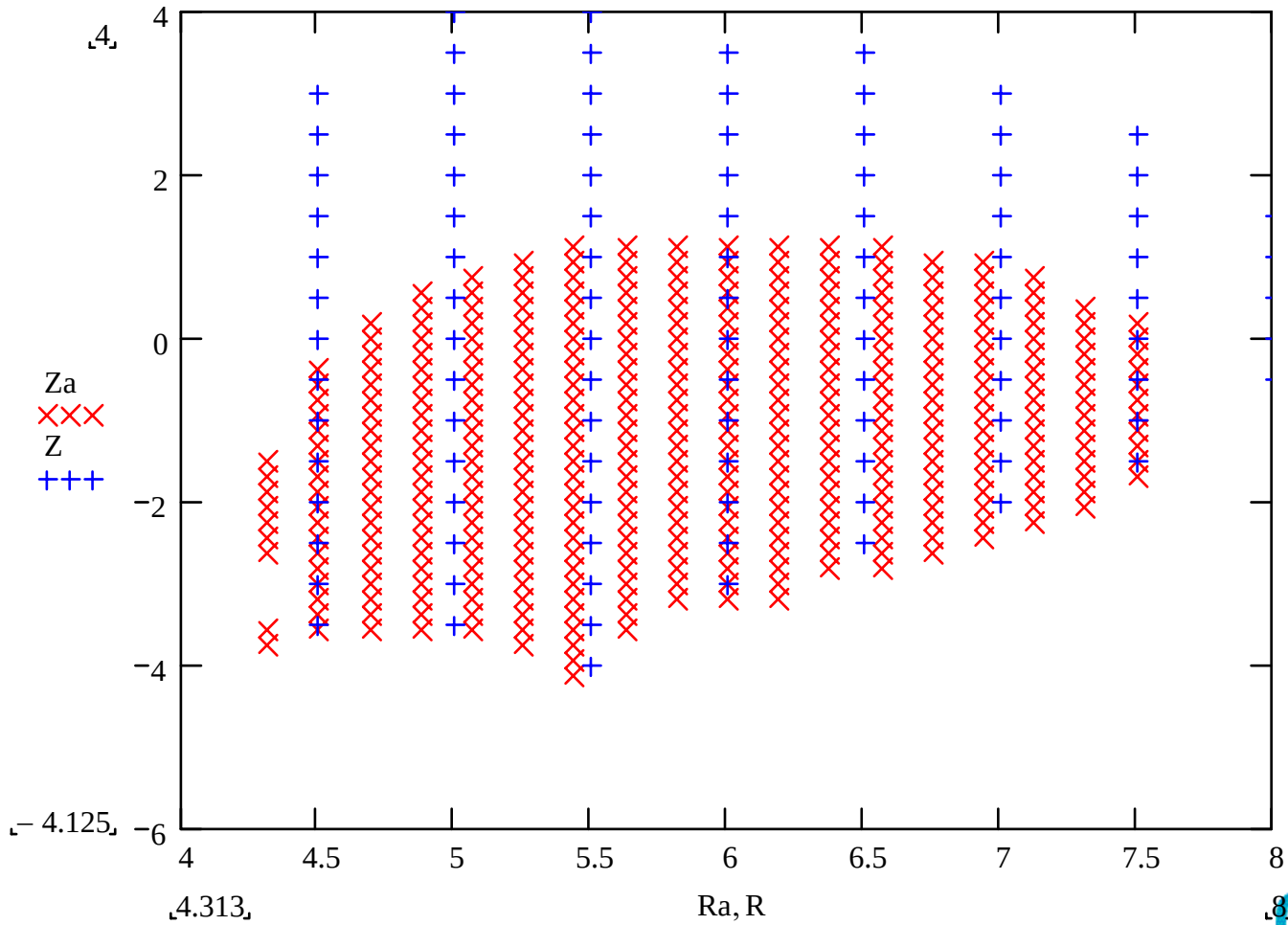
Just Before Disruption (0.635s)



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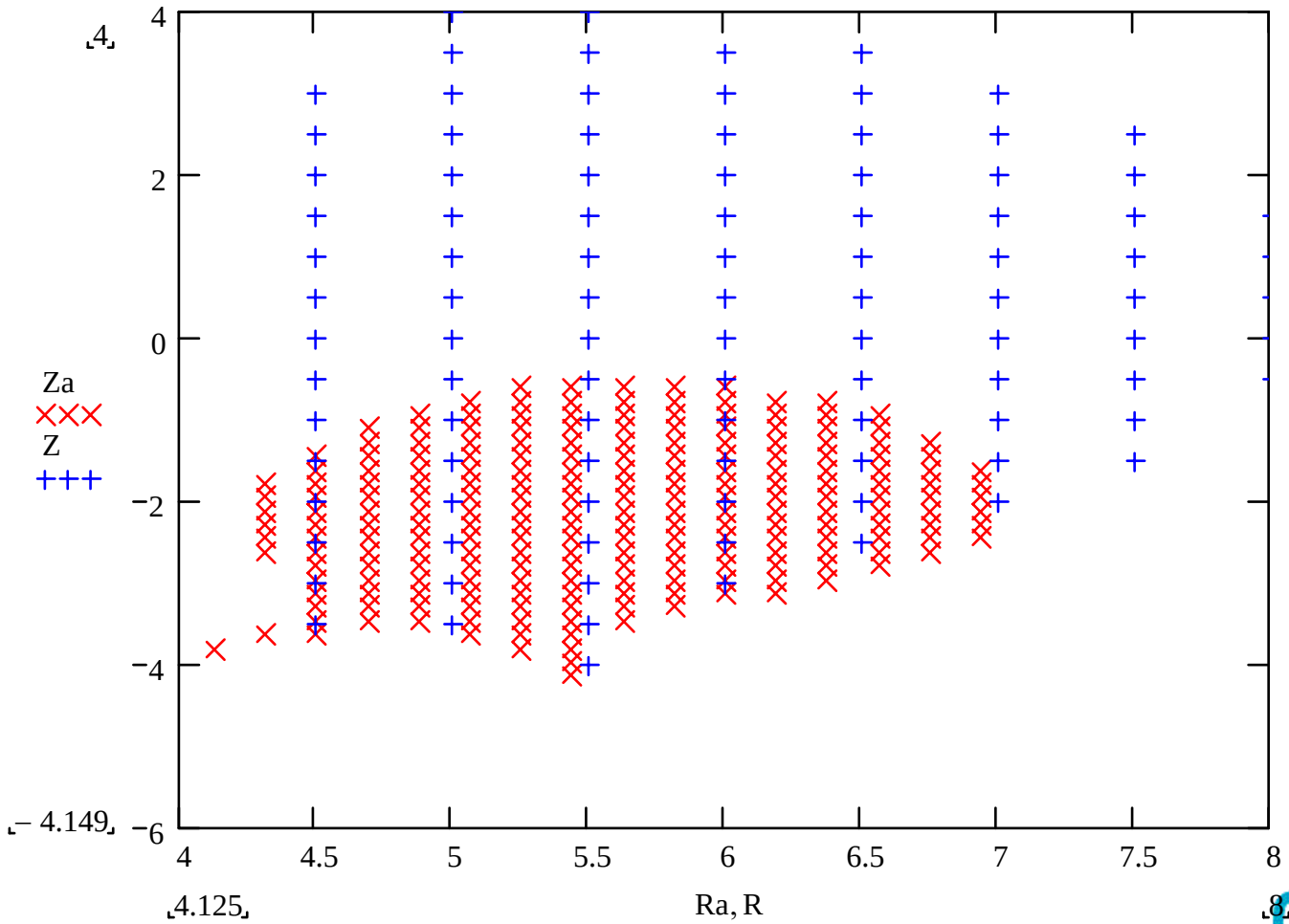
Half Current (0.650s)



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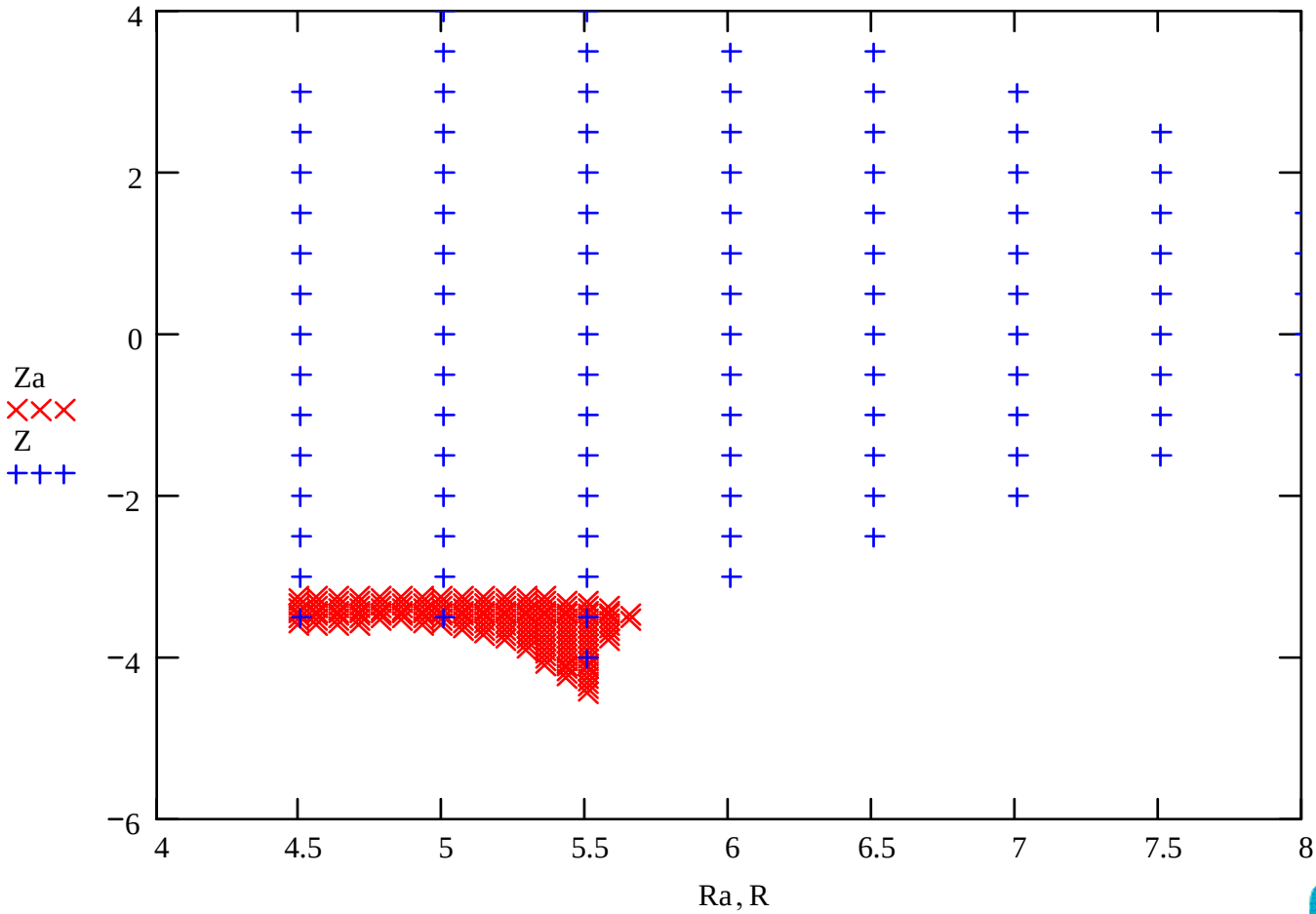
End of Disruption (0.690s)



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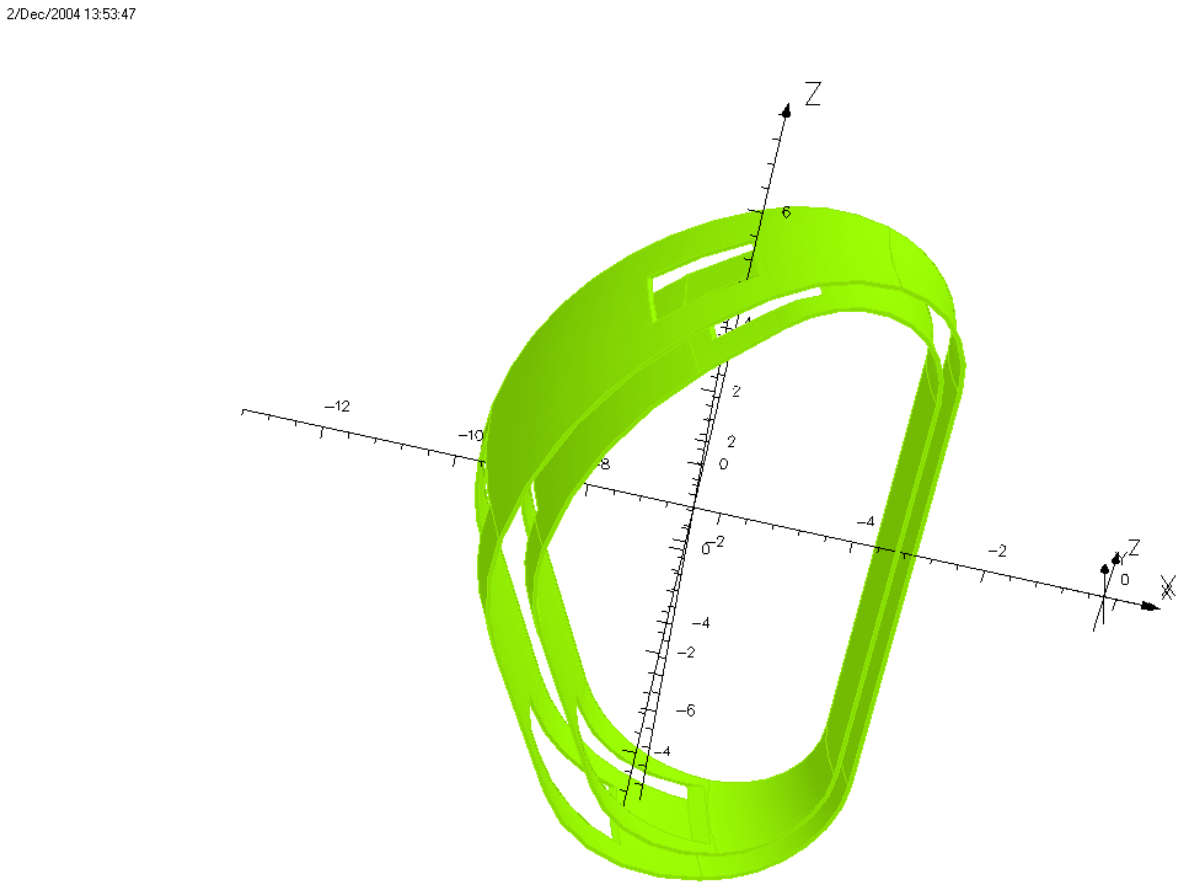
Opera Model of ITER Vessel



VECTOR FIELDS

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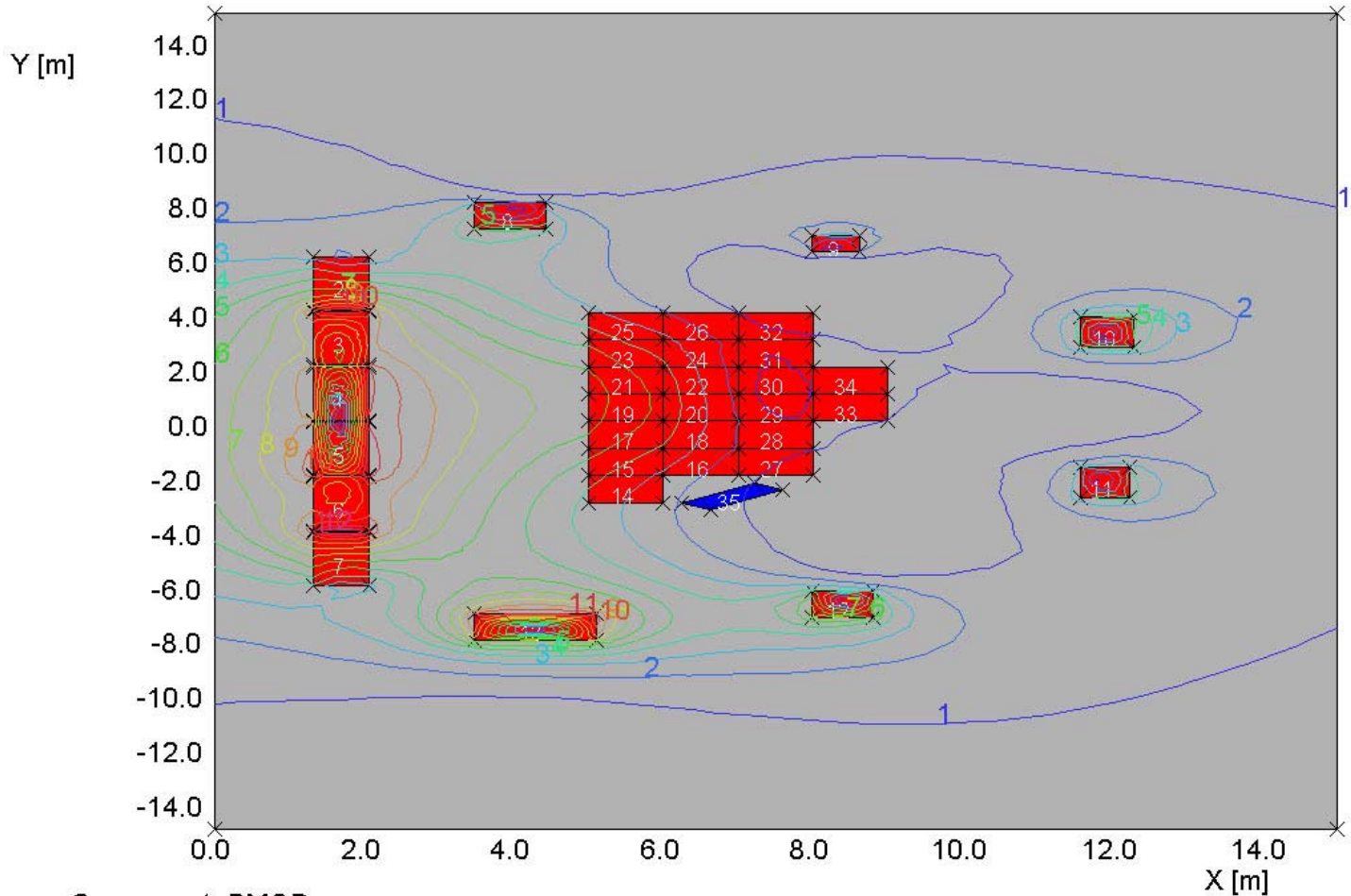
2D model of Disruption



Component: BMOD
Minimum: 0.5, Maximum: 6.0, Interval: 0.5

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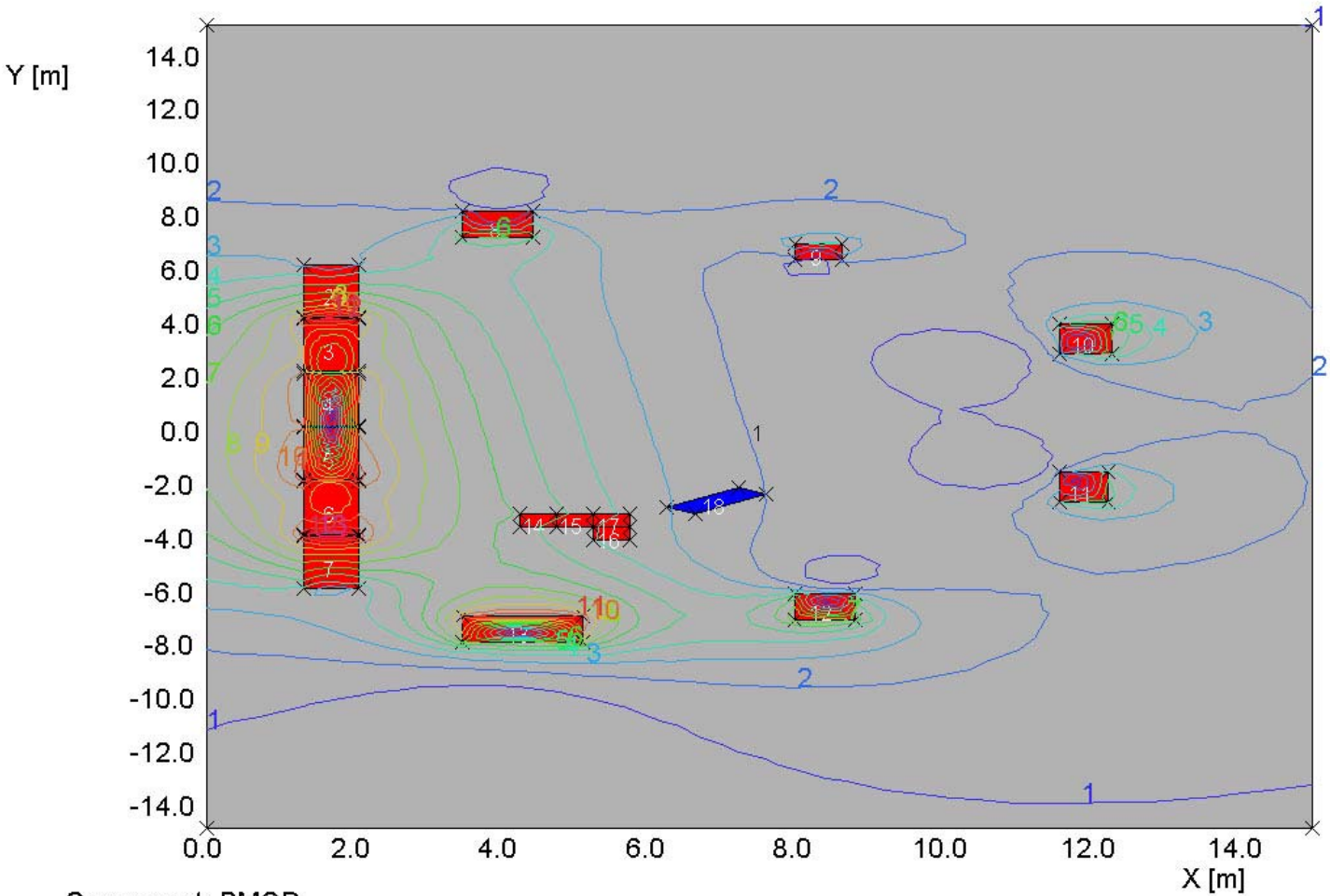
2D Model End of Disruption



Component: BMOD
Minimum: 0.5, Maximum: 6.5, Interval: 0.5

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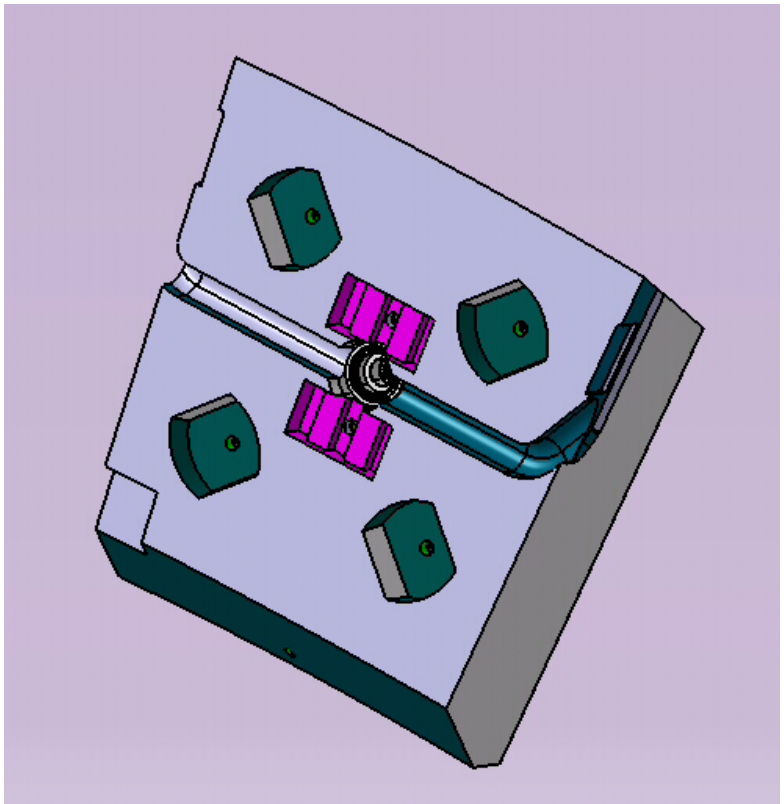
ITER Module 18 Design



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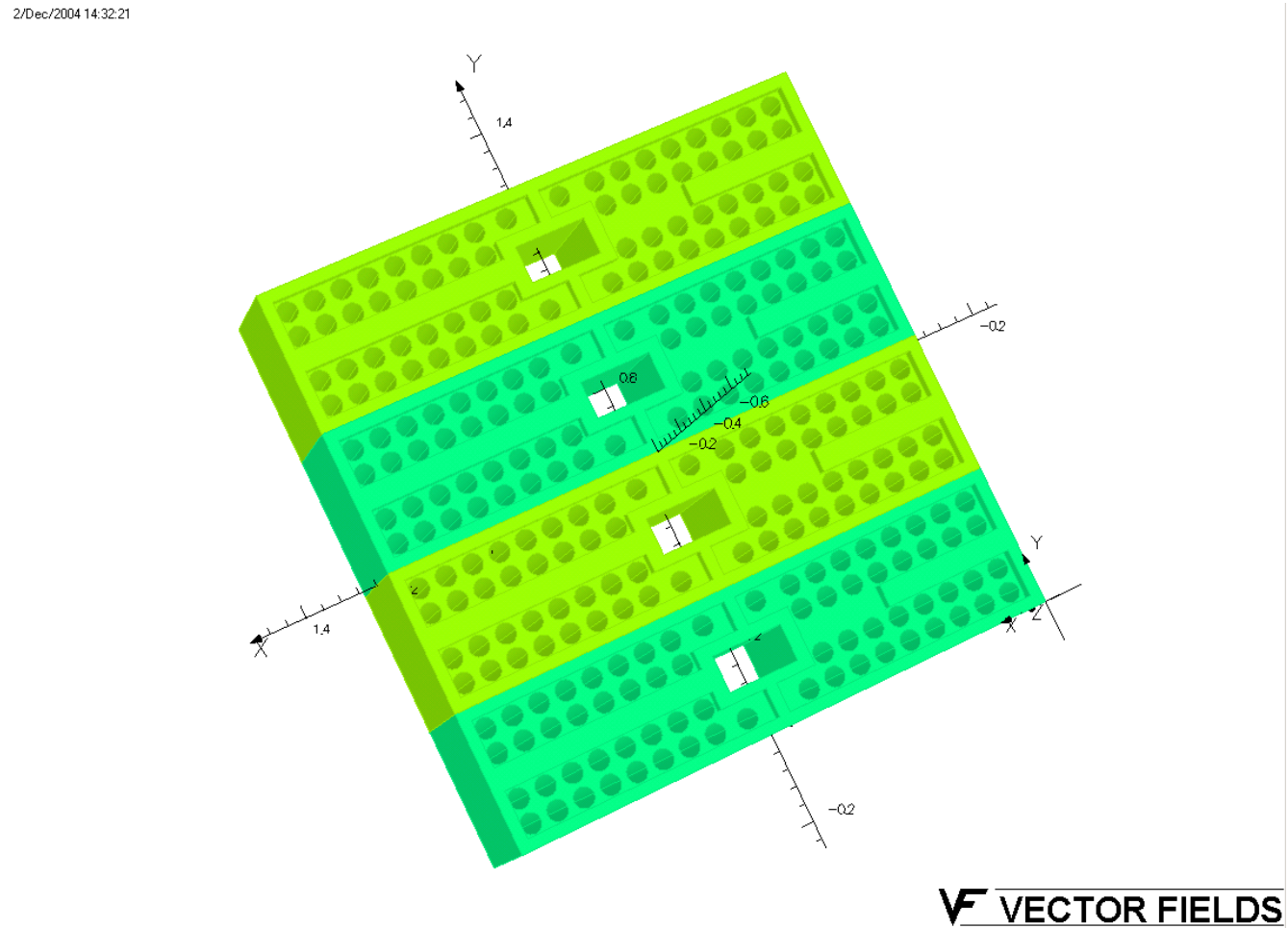
Opera Model Of Module 18



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Extra Effort To Reach CD1

- One additional copy of Opera
- High speed computer to run the large Opera models of ITER FW/S
- Temporary help to create Opera models, run analyses, interpret data, etc.
- Minimum extra effort required $140K